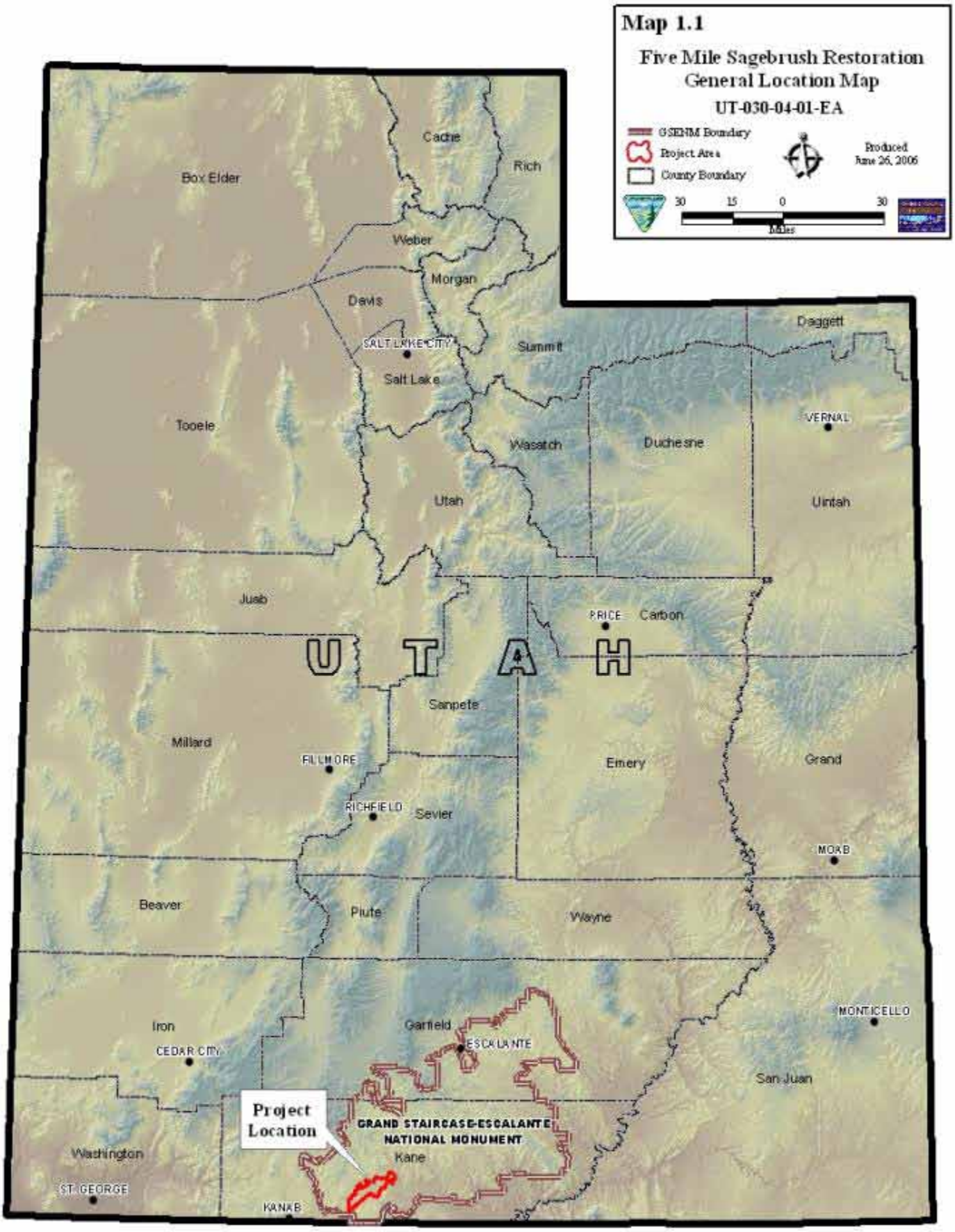
FIVE MILE MOUNTAIN SAGEBRUSH RESTORATION PROJECT

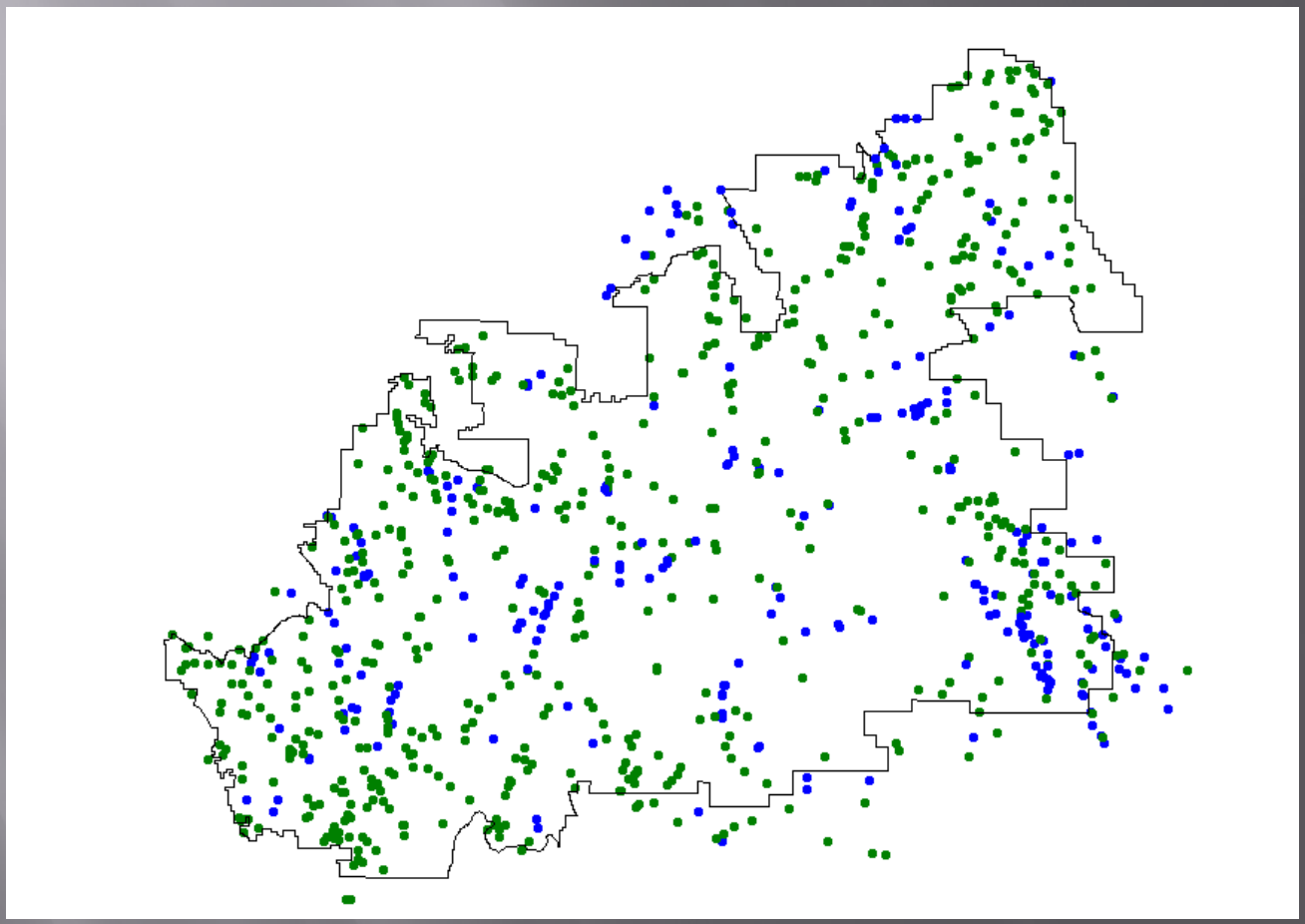
A previously untreated area known as the Substation Phase


Map 1.1
Five Mile Sagebrush Restoration
General Location Map
UT-030-04-01-EA
GSENM Boundary
Project Area
County Boundary
Produced
June 26, 2006
30 15 0 30
Miles
Box Elder
Cache
Rich
Weber
Morgan
Davis
SALT LAKE CITY
Summit
Salt Lake
Tooele
Wasatch
Duchesne
Daggett
VERNAL
Uintah
Utah
Juab
PRICE
Carbon
U T A H
Sanpete
Millard
FILLMORE
Emery
Grand
RICHFIELD
Sevier
MOAB
Beaver
Piute
Wayne
Iron
CEDAR CITY
Garfield
ESCALANTE
MONTICELLO
San Juan
Project Location
GRAND STAIRCASE-ESCALANTE
NATIONAL MONUMENT
Kane
Washington
ST. GEORGE
KANAB

Rangeland Health Assessments

- Technical Reference 1734-6
- Used quantifiable indicators to determine overall rangeland functionality with respect to:
  1) Soil/site stability
  2) Hydrologic function
  3) Biotic integrity

GSENM Assessment sites from 2000--2003



Results

- 507 Assessments made
- Miller 2008, demonstrated, generally, that the more potentially productive the eco-site, the more departed it is from its natural potential
- Most of the loamy sagebrush sites within the project area fit this finding, scoring poorly with respect to soil/site stability, hydrologic function and especially biotic integrity, where sagebrush was the only perennial species over vast expanses

Five Mile Mountain Sagebrush Restoration Project

- 2004 an ID-team was formed to evaluate conditions generally and gather input from interested publics, ranchers and other state and federal agencies to decide what, if anything, should be done for these areas (there was also a preliminary determination that these areas were failing to meet state rangeland health standards)
- Dr. Steven Monson from the Rocky Mountain Research Center lead an on-site discussion to the project area
- An EA was signed in August, 2006 without appeal
- The Substation area was included in phase I, pending funding through the newly organized Utah Partners for Conservation and Development (UPCD).

Five Mile Details Continued…

- Consensus was that in order for other native species to have a chance at establishment, we would need to remove some of the sagebrush (our monitoring was designed, in part to show how much removal was necessary to achieve a diverse community)
- Most agreed that cheatgrass and invasive annuals did not appear to pose a significant long-term threat if sagebrush was disturbed (unlike many typical Wyoming sagebrush eco-sites)
- The project was an opportunity to compare the Dixie (or pipe) harrow with the Ely chain, which was developed for thinning sagebrush
- The project was funded through UPCD

Final Seed Mix

- Sand dropseed
- Indian ricegrass (Rimrock)
- Bottlebrush squirreltail (Kane,UT)
- Winterfat (Iron, UT)
- Thickspike wheatgrass (Bannock)
- Little galleta (Viva)
- Gooseberry-leaf globemallow (Iron, UT)
- Palmer penstemon (Washington, UT)
- Total seed rate: 7.2lbs / acre
- Total area: 350 acres
- Cost / acre: $121.53

or pipe harrow. A half harrow is simply this harrow with every othe

reader/hopper.
ally holds between
l 500lbs of seed.

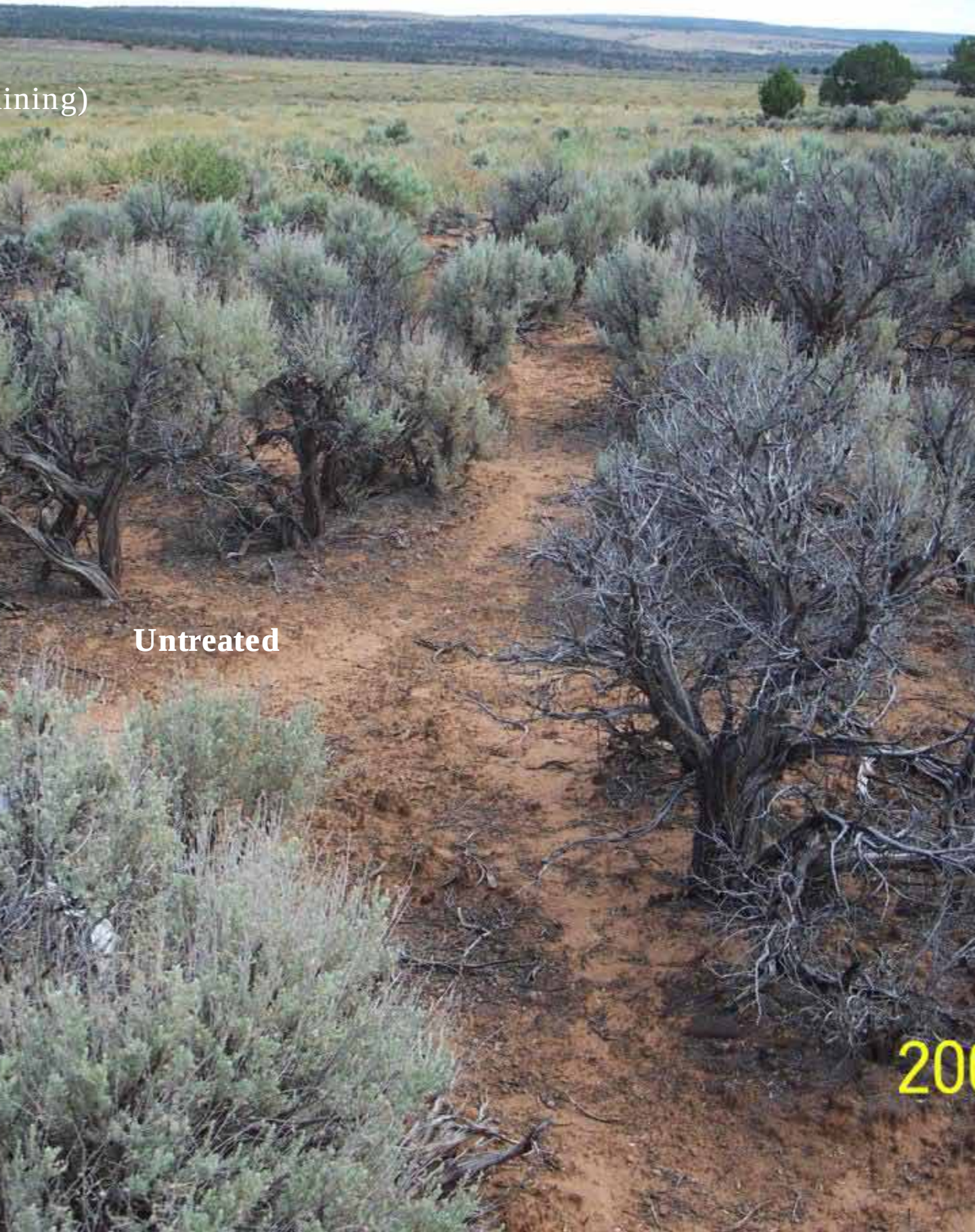
the negative connotation of “chaining”, the Ely Chain is a very versa
rcent kill and amount of disturbance can be adjusted by changing th
e between the machines.


2-way chaining
half harrow

What has been observed to date?

- These types of projects need time and rest
- Sherel Goodrich, Ecologist and Steven Monson (Retired, RMRS)both mentioned that it's best to wait five years before attempting to determine success / failure—good advice!
- The two growing seasons following treatment were well below normal for winter precipitation as well as overall precipitation.
- some plants germinated but failed to become established during the first year
- Looking at it a little differently than orphan Annie, "the rain will come out tomorrow…" in 2008 and again in 2009, favorable precipitation changed everything

lining)



…Anything else?

- Species we didn't seed, such as needle-and-thread, are becoming established on their own.
- Local ecotypes of native grasses are apparently doing OK (local ricegrass and galleta are fairly easy to distinguish from their seeded counterparts).
- The Ely chain is more versatile, cheaper, faster and easier on the soil crusts than either the full or half harrow
- Could we have accomplished the same thing using Tebuthiuron to thin sagebrush without further disturbing the soil?
- Did we need to seed at all?

What about livestock grazing?

- Livestock did not use Substation from 2002 thru fall of 2009
- There were three full growing seasons of rest before grazing resumed
- Grazing occurred from November 2009 through late May of 2010 (in trespass from April 15th), except for within the exclosure
- The setback to the native forbs and grasses was such that Russian thistle, which was only a trace component within the exclosure, became a dominant after heavy summer rains, because of the reduction in competitive ability to the native species and possibly also ground disturbance caused by the cows

When will we have all the answers?

- Data analysis is scheduled to be completed after this summer (it will be five complete growing seasons since treatment on Phase I

Questions?

Citations:

- Miller, M. 2008.
- Environmental Assessment UT-030-04-010-EA, August 17, 2006